Ella's Investor Profile
Putting Spreadsheets to Work
Expressions in Industry Assignment 3

An SB1070 Project

Objectives

By the end of this activity you will be able to apply your knowledge of expressions by plugging them into spreadsheets to calculate profits.

Warm-up – Elevator Pitch

It's your turn to try an elevator pitch. Look back at your assignment on the pitch you have come up with. Divide into groups of 3 or 4 and take turns giving your pitch to one another.

Spread Sheet Expressions

Spread sheets are a way to put your knowledge of creating expressions to work. In a program like Excel or Google Forms each cell allows you to either enter data or enter an expression.

Today you will determine the expressions needed to calculate the finances of Ella's Game Emporium, an online game seller.

Step	Action	Notes & answers
1	Go to https://goo.gl/JJpqPk . You will need to download the google sheets application if you are using a tablet.	
2	If you are using a laptop or other computer under "File" select "Make a Copy" If you are using a tablet find the menu (an ipad has 3 dots in the upper right area of the page) select "Share and Export" then click "Make a Copy" Rename your copy	File Name of your Copy:
3	a) Take a look at the spread sheet. This has been created just for this activity, so the data that is here is protected. If you accidentally change the wrong data field you will get an alert and you should select "cancel". b) You will create an expression to enter into each colored cell found in this spread sheet. c) Using just these expressions you will be able to program the spreadsheet to do all of your calculations for you. Here are some tips on how to enter something into a spreadsheet: • Each box in the spread sheet is called a cell • When you select a cell you can edit the formula in the formula bar next to the *fx* • When using formulas always begin by typing an = sign • * is for multiply, / is for division, +is for addition, - is for subtraction • Instead of entering a value from another area of the spread sheet you only need to click on the box the value is in. • Every column in a spreadsheet has a letter and every row has a number. These are used to identify each cell as you enter them into the spreadsheet.	
4.	If you have a specific tax rate (t) on your total sales (s), write an expression you could use to calculate the taxes you collect on the sales.	Expression:

Step	Action	Notes & answers
5.	Now enter the expression into your spreadsheet: The step by step procedure: • Click on the first pink cell in the row labeled "Taxes collected" • In the cell you need to type **=** • Click the cell representing the tax rate for 2010 • Add * to multiply • Click on the cell representing the total sales for 2010 • Select the enter or return button on your keyboard Google forms has done the math for you and you should see the value 10,500 in the cell.	Which cell has the value 10,500 in it?
6.	Now it is time to fill in the remaining cells to calculate the taxes collected during each year. • Click on the pink cell again. • In the *fx* equation box you should see *fx* =C7*C5 • Hold down on the cell and select "copy" • Highlight the remaining pink cells in that row and select "paste" • You should find that each cell has a different number in it representing the taxes collected based on that year's income and tax rate. When you copy a cell that contains an expression, the variables move to the related columns! *TIP – If you are not able to select a cell on your tablet, minimize the keyboard so that you are in select mode again. Hold down on the cell until you are given the option to copy the cell.	When you click on the cell that reads "12,687.5" what do you see in the *fx* eqution box? Locate cells D6 and D5. What data do you find? When you click on the cell that reads "16557.5" what do you see in the *fx* eqution box?
7.	The next set of cells is to determine the amount of money that went towards the transaction fee before you even received the money from the sale (s). Write an expression to represent the transaction fees paid based on the fee percentage (f).	
8.	Now enter the expression into the spreadsheet. This should go in cell C9. As before, you will click a cell to represent each variable. • start with an = sign, • click on the sales from 2010 • select the * to multiply • then select rate for the transaction fee and push return What does the expression look like in the *fx* equation box? Copy and paste this across row 9 so that D9, E9, F9 and G9 all calculate the online transaction fee amount.	How much did Ella have to pay for online transaction fees in 2012?

Step	Action	Notes & answers
9.	To calculate the gross income, you need to subtract the taxes collected (c) and the online transaction fee (o) amount from the total sales (s). Write an expression to represent this. Insert your expression into cell C10, substituting cells for each variable. What does your expression look like in the *fx* box? Copy and paste your expression across row 10.	Expression In the box the expression looks like: What is Ella's gross income for 2015?
10.	Now you need to find out how much gross profit was made from Ella's sales. To do this we need to find out the cost of the goods that were sold. In cell C14 you need to multiply the non-NAFTA goods by 3% to represent the tariffs paid on those goods. The nice thing is that a spreadsheet automatically turns a percentage into a decimal for you, so you merely have to multiply the percentage by the value of the goods. Paste in the remaining cells in row 14 with this expression.	What does the expression look like?
11.	To find the COGS (Cost of Goods Sold) write an expression to add together the goods from all countries minus the taxes. Paste this expression in across row 15.	What does the expression look like? What was the COGS in 2014?
12.	To find the gross profit, you will need to subtract the Cost of Goods Sold from the Gross Income. This will represent the margins made on your products. Write an expression to represent the gross profit. Paste this expression in across row 17.	What does the expression look like? What was the gross income in 2013?
13.	You may notice that to create the expression for gross profit you used two values which were already determined by other expressions. Try to come up with an expression that does not use any values we calculated using expressions in previous cells. Look at the expressions in the other cells for help.. Variables to use: Sales (s) Tax Rate (t) Transaction Fees (f) NAFTA goods (N) nonNAFTA goods (G)	Write an expression to represent gross profit from raw data. (use space below)

Step	Action	Notes & answers
14.	Although you have used expressions to find the Gross Profit for your business, there are many other costs associated with business. These costs are called the Overhead costs. In order to calculate your overhead costs all you need to do is add them all together. In a spreadsheet this can be made even easier by using the SUM function. In the *fx* box you can write =SUM(select all boxed to be added) and all of the boxes you select will be added together. Try this now! Select cell C25 and in the *fx* box write =SUM You should see some options come up and select "SUM" and a highlighted pair of parentheses will appear. Click all of the cells you want to add together and you will see them appear in your *fx* box between the parentheses. Once you are finished selecting the cells just press return and the box will add together all of the cells you just selected! Copy and paste the expression into the other cells in row 25.	What does the expression in cell C25 look like? What were the total overhead costs in 2011?
15	It's time to find the Net Profit for each year! To do this you just need to subtract the overhead from the gross profit. Create your expression in cell C27 and copy and paste it across the cells in row 27.	What was the net profit in 2013?
16	Taxes are taken from the Net Profit, so this is an important number. Write a mathematical expression to show how much profit is retained if the Net Profit is represented by (N) and the Tax Rate is represented by (T) Fill in this expression in cell C30.	What is the mathematical expression? N-NT
17	Take a look below the spreadsheet… you will see a graph and you should now see the first point on the graph. Copy your expression and paste it in Cells D30, E30, F30 and G30, watching the graph grow as you add more data. You should see two lines growing. The blue line represents your retained profit, and the green line is used to project your future profits – it is a best fit linear projection.	Draw a rough sketch of the graph that you see.
*Note – The graph is set up to show the projection line through 2017, however the interface on an iPad or iPhone will not show the line beyond 2014. Pull up a computer or a non-apple tablet in order to see the projection line through 2017.		

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Step	Action		Notes & answers
18		Take a look at the graph you created. It should look like the one on the left.	What are the approximate projected profits for each year? 2015 2016 2017
19	If an investor was to buy 20% of the company for $100,000, what would their estimated dividends be for each year? A dividend is the owner's portion of the profits, so this investor would earn 20% of the annual profits. After three years, how much of the $100,000 investment would not have been recouped in dividends? Based on these numbers, which year do you expect the investment to be fully recouped?		Expected dividends 2015 2016 2017
20	Is there any evidence that the investor may be paid back more quickly?		

Challenge	
Consider all of the expressions you have used in determining the net profits for Ella's company,	List all of the variables you use and their description.
Write a single expression that could be used to determine the net retained profits for any company.	

Career Spotlight – Finance Manager

A finance manager is responsible for producing financial reports for an organization, coordinating accounting and developing strategies for long term goals. Overall they are responsible for the financial health of an organization, managing the team of financial experts. They must also ensure that the company is compliant with financial law and maintains strong fiscal health.

Average Annual Salary: $110,000

Education Requirements: Most begin with a bachelor's degree in finance, accounting, econmomics or business administration. Some go on to earn a masters degree as well. To move into this management position, an employee needs five or more years of experience in a related entry level positions, often in banks or within the financial sector.

More information: http://www.bls.gov/ooh/management/financial-managers.htm
http://money.usnews.com/careers/best-jobs/financial-manager

References

http://gotgeniusgames.com/kickstarter-topic-4-manufacturing-a-card-game/
https://www.fundable.com/learn/resources/guides/investor-guide/what-to-prepare-before-you-pitch
http://ec.europa.eu/taxation_customs/common/buying_online/buying_goods/within_eu_en.htm
http://www.investopedia.com/terms/g/grossprofit.asp
http://www.entrepreneur.com/article/76418
http://stocata.org/ta_en/basic2.html

KEY

Answer	Answer	
4. Expression: =(t)(s)	9. Expression =s-c-o In the box the expression looks like: =C5-C7-C9 What is Ella's gross income for 2015? $261,942	14. What does the expression in cell C25 look like? =SUM(C20,C21,C22,C23,C24) What were the total overhead costs in 2011? 40,300
5. Which cell has the value 10,500 in it? C7		
6. When you click on the cell that reads "12,687.5" what do you see in the *fx* eqution box? D6*D5 Locate cells D6 and D5. What data do you find? The total sales & tax rate for 2011 When you click on the cell that reads "16557.5" what do you see in the *fx* eqution box? E6*E5	10. What does the expression look like? =C13*3%	18. What are the approximate projected profits for each year? 2015 ~$105,000 2016 ~$120,000 2017 ~$135,000
	11. What does the expression look like? =C12+C13-C14 What was the COGS in 2014? 60,357	19. Expected dividends 2015 ~$21,000 2016 ~$24,000 2017 ~$27,000
7. =(f)(s)	12. What does the expression look like? =C10-C15 What was the gross income in 2013? 155,021	20 Many possible options, but if you look at the graph, the 2014 data already exceeds the linear trendline, so future years may also exceed the trendline.
8. =C5*C8 How much did Ella have to pay for online transaction fees in 2012? $5,272.50	13. Write an expression to represent gross profit from raw data. =(s-ts-fs)-(N+G-(G*3%))	
Answer key for number 13 **[Sales-sales(tax rate)-sales(transaction fee)]-[NAFTA goods + nonNAFTA goods-(nonNAFTA*3%)]**		

	Challenge	
	Consider all of the expressions you have used in determining the net profits for Ella's company,	List all of the variables you use and their description.
	Write a single expression that could be used to determine the net retained profits for any company. =s-ts-fs-g-o(1– b)	Sales (s) Sales Tax Rate (t) Transaction Fees (f) cost of goods sold (G) overhead (o) business tax rate (b)

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